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ABSTRACT

Two studies were designed to examine the effect of school placement (specifically, mainstreamed versus self-contained classrooms) on the social development of hearing-impaired high school youth. In the first study, 85 hearing-impaired high school students (some in self-contained classrooms, and others mainstreamed) were assessed on measures of social adjustment, emotional adjustment, self-image, confusion, and integration. Results did not indicate any statistically significant differences for the social development measures. Regression analysis (used to determine if the degree of social maturity was related to sex, race, total hours mainstreamed, or reading level) indicated no significant relationship except for the variables of confusion and reading level. It could not be concluded that hearing-impaired students in mainstreamed classrooms experience poorer or enhanced social development than do their peers in self-contained classrooms. The second study involved 14 hearing-impaired students in an undergraduate psychology class at Gallaudet College (Washington, D.C.) who completed a questionnaire about their high-school experiences. Students in residential schools reported less confusion and felt more integrated into the school than mainstreamed students. Several factors contributing to social development and positive feelings about high school are cited. (JDD)

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SOCIAL DEVELOPMENT FOR HEARING IMPAIRED HIGH SCHOOL YOUTH

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Conflicting opinions regarding the best placement of hearing impaired students have been expressed: Proponents of mainstreaming argue that opportunities for social interaction with normally developing peers benefit handicapped children by providing them with an experiential context in which to develop social skills necessary for functioning in the world (Asher, 1978; Furman, Rahe, & Hartup, 1979). Proponents of residential or nonmainstreamed day school programs argue that communication problems result in social isolation for the hearing impaired students that inhibits their social emotional development.

Research findings have not yielded a clear picture concerning the validity of these two positions. Conflicting findings have resulted from differences in the types of placements, grade level, actual programs experienced by the students, and definitions of social development. There are three general types of settings that have been examined:

1. Mainstreamed settings in which the hearing impaired students attend classes with their hearing peers.

2. Self-contained settings in which the hearing impaired students attend special classes for the hearing impaired students at the public day school.

3. Residential schools, in which the hearing impaired students attend classes with other hearing impaired students away from home in a residential setting.

Depicting a trichotomy of school placements is really an over-simplification of the situation. The student who is mainstreamed can be integrated into any number of classes, as well as into different types of classes (academic vs. nonacademic), and can be provided with a variety of support services. Studies of the influence of school placement on the social development of hearing impaired youth have examined a variety of combinations of settings.

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For example, Craig(1965) and Farrugia and Austin(1980) compared the social development of hearing impaired students in residential schools and self-contained classes. Both studies reported higher self-concepts for the youth in the residential schools. In addition, maturity, social adjustment, and emotional adjustment of the deaf students in the public school in the Farrugia and Austin study were rated positively, however, they were significantly lower than those of the residential students. Neither study included a fully mainstreamed comparison group. Alternative explanations for their results include: 1) the possibility that the protective environment of the residential school has resulted in an overly-inflated sense of self, or 2) since the hearing impaired students who were attending the day school were not fully integrated with supportive services, they were thus left on the "fringe" of social interaction.

In contrast to the residential school versus day school comparison previously described, Dale(1984) compared the effects of a mainstream setting versus a self-contained classroom at the elementary school level. In the mainstream setting, activities were carefully structured to promote interaction, parents were involved, and support services were provided. In this carefully documented longitudinal study, Dale reported that the mainstreamed children became more socially mature at a more normal rate than did a comparison group in a self-contained program.

Reich, Hambleton, and Houldin(1977) compared the effects of varying degrees of mainstreaming and support services on self-concept and social adjustment. Their secondary students were enrolled in three types of programs: fully mainstreamed without support services, fully mainstreamed with an itinerant teacher who provided tutoring to the hearing impaired student and consultation with the regular classroom teacher, and partially mainstreamed students who were in self-contained classrooms most of the day and in mainstream classes in subject areas in which they had demonstrated competence. The strongest self-concepts were reported for the students in the fully integrated classes with the itinerant teacher. No difference in self-concept was reported between the fully integrated classes without support and the partially integrated students. In addition, no differences were reported among the groups on social adjustment.

Ladd, Munson, and Miller(1984) investigated the social development of hearing impaired high school students in a mainstreamed setting with an interpreter. They did not have a comparison group, instead they observed changes in the students' behavior over a two year period. They reported an increase in the number of interactions between the hearing impaired and hearing students from junior to senior years. Interviews with parents, teachers, and students supported the improvement of social relations, increased self-reliance and maturity, and more positive attitudes.

The purpose of the present study was to examine the effect of

school placement (specifically, mainstreamed versus self-contained classrooms) on the social development of hearing impaired high school youth. This is important for a number of reasons: 1) the period of adolescence is critical for social-emotional development, 2) the one study that compared students in mainstreamed and self-contained classrooms was conducted at the elementary school level, and 3) research at the secondary level indicates the importance of support services for enhancing social development.

STUDY 1

Method

Subjects. A subset of the 205 subjects in the Kluwin and Moores(1985) study was used in the present study. Kluwin and Moores collected data from hearing impaired students in three large urban public high schools. In all three sites, sign interpretation by trained interpreters is provided to students in integrated classes.

To control for extraneous variables, the following criteria were used to select the subjects for the present study:

1. The subject must be pre-lingually deafened.
2. They must have a loss of 70 db or greater in their better ear.
3. Both parents must be hearing.
4. They must have no additional handicaps.

Application of these criteria resulted in a subset of 85 students (51% male; 49% female) between the ages of 15 and 20 who were enrolled in high school in 1984.

Instruments. The dependent variables were obtained from two instruments: 1) the Meadow-Kendall Social Emotional Inventory, and 2) a series of questions about the students' feelings on the Student Questionnaire in the Kluwin and Moores(1985) study.

The Meadow-Kendall has three subscales:

1. Social adjustment-maturity in a social sense in terms of the individual's ability to care for himself, accept responsibility, and to be independent.

2. Self-image-the way a child has incorporated feelings of significant others about him/herself.

3. Emotional adjustment-ability to interact without being impulsive, egocentric, or rigid.

Eight questions concerning the students feelings on the Student Questionnaire were factor analyzed using a principal components analysis with VARIMAX rotation (Table 1). Three factors with

eigenvalues over 1.0 were obtained. Items that weighted heavily on the first factor, named Confused, related to understanding what was happening in class, and being confused by the school and by what happens in class. The second factor, named Integrated, contained items related to feeling a part of the school, finding it easy to communicate with the teacher, and having friends to help with homework. The third factor was not interpretable.

Background information was also obtained from the Student Questionnaire. In addition, students' SAT-HI scores were obtained from the Center for Assessment and Demographic Studies at Gallaudet College.

Results

The mainstreaming variable was defined in terms of the total number of classes in which the students were mainstreamed. Fifty-four percent of the students were not mainstreamed at all (i.e., they were in self-contained classrooms). Of the remainder, 26% were mainstreamed in one course, 9% in two courses, 1% in three courses, and 2% in five courses.

Means and standard deviations were computed for the five dependent measures: Social Adjustment, Emotional Adjustment, Self-image, Confused, and Integrated(Table 2). One way ANOVA's were conducted to test for the effects of the number of hours in a mainstreamed setting on social development. The results of the analyses do not indicate any statistically significant differences for the social development measures. The Meadow-Kendall variables approach significance, however, the relationship does not seem to be linear. Individuals with one mainstream hour received higher social adjustment ratings than either individuals with no mainstreaming or individuals with more than one hour of mainstream classes. Thus, it seems that students in self-contained classrooms are rated similarly to those with two or more mainstream classes. Perhaps, a certain level of social maturity is required in order to consider mainstreaming a student. However, exposure to a higher degree of mainstreaming may not result in a positive social experience.

Regression analysis was used to determine if the degree of social maturity was related to such variables as sex, race, total hours mainstreamed, and reading level. The regression analyses indicated no significant relationships between the independent variables of race, sex, total hours mainstreamed and reading level, and any of the dependent variables, except Confused. The reading level was significantly related to the Confused variable ($p < .02$), suggesting that individuals who read better also feel less confused in school.

Discussion

The results do not support the conclusion that hearing impaired students in mainstreamed classrooms experience poorer social development than do their peers in self-contained classrooms.

Neither do they support the conclusion that hearing impaired students' social development is greatly enhanced by their experience in the mainstreamed classrooms. One limitation in Study 1 is that information is aggregated across programs in three different schools, thus differences in classroom processes that might enhance or inhibit social development might be obscured. The result would be a "wash out", i.e., the effects of good programs are balanced out by the effects of weak programs, and the result is "no significant difference". A second limitation relates to the type of data that were collected, i.e., only quantitative responses to the questions were obtained, thus it is not possible to discern the reasons for the subjects' responses. In an attempt to investigate the reasons that the students used to describe their experiences and the specific classroom dynamics that contribute to or detract from social development, a second study was undertaken.

Study 2

Method

Subjects. The subjects consisted of fourteen (9 female; 5 male) hearing impaired students enrolled in an undergraduate educational psychology class at Gallaudet College. Four of the students reported a moderate to severe hearing loss while the remainder reported a severe to profound loss.

Several limitations must be noted for this study: 1) The subjects in Study 2 are different people than those in Study 1, thus this study investigated the effect of school placement in a more general sense, and is not specific to the experiences of the subjects in Study 1. 2) A small sample size limits the generalizability of the results and also indicates that caution must be used in interpreting the results. 3) The subjects in Study 2 are primarily juniors and seniors in college who are reflecting upon their high school experiences, as opposed to the subjects in Study 1 who were enrolled in high school at the time of that study. 4) The dependent measures reflect the students' feelings about their social experiences in high school, and not their ability to adjust socially to the outside world.

In addition to these limitations, several strengths of the study should also be noted. Although the sample size is small, the in-depth comments that were elicited from the subjects can be used to help gain insight into the reasons behind the students' perceptions and can be used to raise additional questions in this area. While it could be argued that retrospective data lacks validity, some of the students' comments suggest that such data may have a different kind of validity. For example, when asked if she understood what was happeing in class in high school, one student replied: "I don't think I was aware at that time. I didn't realize how much I missed in class. Whatever I didn't get in class, I thought that's the way it was supposed to be." This response is analogous to the situation in which people are trained in the theory of teaching (or engineering) and they do not realize what they do not know until they

go out and try to apply what they learned.

Instruments. The subjects were asked to complete an 18 item questionnaire that included demographic information as well as open-ended questions about their educational experiences. In addition, they responsded to the same eight questions concerning their feelings about high school that the subjects in Study 1 had answered. All the students completed the written questionnaire and subsequently participated in a discussion of their responses.

Results

The subjects reported experiencing three different types of placement: 1) Mainstreamed with support services (43%), 2) Mainstreamed without support services (29%), and 3) residential school (29%). The support services included an interpreter and notetaker for three students, an itinerant teacher for two students, and a resource room for one student. Descriptive statistics and a one-way ANOVA were computed on the dependent variables Confused and Integrated by school placement (Table 3). The mainstreamed students with and without supportive services were very similar on these two variables. The residential students reported significantly less confusion and had a tendency to report feeling more integrated into the school.

The positive responses of the students who attended a residential school may be based on being in an environment in which communication problems are minimized and friends are plentiful. Two students who were not happy in a mainstreamed school switched to a residential school. They cited their teachers' ability to sign, socializing with classmates, and participation in after-school activities as important factors. No true measure of these students' social development is available. It is possible that their social maturity was stunted by the sheltered environment in the residential school. These students did not have to make the adjustments to the "hearing world" that the mainstreamed students did.

A few of the mainstreamed students expressed a positive attitude toward their social experiences in high school. One female described her social experiences as moderately easy while she had an interpreter, but very difficult when she did not. Another student said she "acted normal, as if hearing is perfect", communicated with voice and lip-reading, and felt she had few social problems. Her teachers encouraged an environment in which the hearing students could express their curiousity about the deaf experience, and the hearing impaired student could help the enlarge the cultural experiences of the normally hearing students. She was helped by a hearing student who knew some signs and fingerspelling. Another student who could use voice and had an interpreter felt his social experiences were good. The interpreter helped him by discussing lecture topics prior to class. Three subjects said that their social experiences were enhanced by being able to play sports.

Of the students who expressed negative attitudes about their social experiences, three said they were the only hearing impaired student in their school, they did not have any support services (except a resource room), and they did not participate in any after-school activities. Two students said they were not allowed to play varsity sports because they were deaf. One summed it up this way: "Life stank! I didn't have many friends. No other deaf kids in my classes." Another said, "Socializing with girls was easy, but I didn't have a lot of time with boys. What a shame." Compare this comment to that made by a residential school student: "All my classmates were deaf and I socialized with them. We shared our assignments by giving each other feedback, notes, etc. We had an excellent line of communication with each other and with the teachers."

Discussion

The results of the present study do not settle the controversy concerning the best school placement for a hearing impaired student. They do, however, raise several issues which are of importance:

First, residential school students seem to describe their experiences in high school in a more positive way because of their teachers' ability to sign, socializing with friends, and participation in after-school activities. Craig(1965) and Farrugia and Austin(1980) reported similar results in comparisons of residential students and day-school students. However, research to date has not answered the question concerning the effect of a sheltered environment on self-concept and social maturity when the student leaves the residential setting. A more positive feeling about high school experiences must not be confused with social maturity, although factors that contribute to the more positive feelings might transfer to a setting that would encourage social development.

Second, the pain expressed by the students in the mainstream settings cannot be ignored. At best, adolescence is a time of confusion and searching for one's self and one's place in the world. The school system has a responsibility to provide supportive services that can lessen the confusion that a hearing impaired student feels at this time. Further research is necessary to document the nature of the social experiences of hearing impaired high school youth with a larger and more representative sample.

Third, several factors that contribute to the social development and positive feelings about high school have been identified, in the present study, as well as in previous research. These include such things as using interpreters, parent involvement, structuring activities, and use of itinerant teachers(Dale, 1984; Ladd, Munson & Miller, 1984; Reich, Hambleton, & Houldin, 1977). The results of the present study supported these previous findings in that students who had interpreters reported more favorable social experiences in high school. Other important factors include: better reading skills, participation in sports, having the interpreter explain topics prior to class, use of voice and lip-reading, encouragement

of interaction and deaf awareness by the teacher, signing by peers, and participation in other after-school activities. All of these factors are action-oriented and could be implemented in a school that wants to encourage improved social development for their hearing impaired students. Further research is needed to support the relationship between these factors and improved social development.

Fourth, the pursuit of the goal to encourage the development of social skills necessary for functioning in the hearing world must not eclipse the importance of academic achievement for the hearing impaired student. A student who feels confused about what is happening in class has bad feelings, but he/she also has an academic handicap as well. Many of the factors related to improved social development might also be related to improved academic functioning.

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Table 1

Principal Components Factor Analysis with VARIMAX Rotation of Student's Feelings About Their School Experience

		Factor 1 Confused	Factor 2 Integrated
1.	I don't understand much of what happens in class.	.72	-.13
2.	This school is so big and complicated that it confuses me.	.70	.21
3.	I am very confused by what happens in class.	.67	-.09
4.	I feel that I am really a part of this school.	.14	.72
5.	I can communicate easily with the teachers.	-.15	.63
6.	I have many friends who help me when I need help with my school work.	-.05	.61
7.	I always understand what the teacher says to me.	-.09	.09
8.	I feel alone at this school.	.41	-.01

Table 2

Descriptive Statistics and One-Way ANOVA for Social Development by Number of Mainstreamed Classes

Scales		Number of Mainstreamed Classes			
		0	1	2 or more	p<
Social adjustment[a]	$\bar{X}$	3.15	3.38	2.72	.06
	sd	.66	.67	.38	
Emotional adjustment[a]	$\bar{X}$	3.55	3.81	3.45	.06
	sd	.50	.40	.38	
Self-image[a]	$\bar{X}$	3.08	2.98	3.00	.09
	sd	.56	.57	.00	
Confused[b]	$\bar{X}$	6.60	6.07	6.99	.38
	sd	1.41	1.47	1.31	
Integrated[c]	$\bar{X}$	5.86	6.01	6.03	.16
	sd	1.21	1.34	1.24	
n		53	21	11	

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a 2 = below average; 3 = average; 4 = above average.

b 1 = most confused; 12 = least confused.

c 1 = most integrated; 12 = least integrated.

Table 3

Descriptive Statistics and One-Way ANOVA Results for Feelings about School by Placement

Scale		Mainstreamed with support	Mainstreamed without support	Residential school	p<
Confused[a]	$\bar{X}$	4.56	4.41	7.96	.01
	sd	1.67	1.98	.64	
Integrated[b]	$\bar{X}$	4.45	4.26	2.46	.09
	sd	1.09	1.93	.73	
n		6	4	4	

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[a] 1 = most confused; 12 = least confused.

[b] 1 = most integrated; 12 = least integrated.